

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 91-119

SITE CLEANUP REQUIREMENTS FOR:

MICRO STORAGE CORPORATION,
KIM CAMP III,
KIMBALL SMALL INVESTMENTS III,
WESTALL CORPORATION, &
CAMPEAU CORPORATION CALIFORNIA:
FORMER MICRO STORAGE FACILITY
2986 OAKMEAD VILLAGE COURT
SANTA CLARA, SANTA CLARA COUNTY

INTEL CORPORATION &
3000 OAKMEAD VILLAGE DRIVE LTD.:
FORMER INTEL MAGNETICS FACILITY
3000 OAKMEAD VILLAGE DRIVE
SANTA CLARA, SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. **Site Location and Description of Dischargers** This Order presents the selected final remedial action plan (RAP) for the combined Micro Storage/Intel Magnetism Superfund site (combined MSC/IM site).

Kim Camp III (KCIII) is the property owner of the former Micro Storage Corporation Facility (MSC site) located at 2986 Oakmead Village Court, Santa Clara (Figures 1 and 2). Micro Storage Corporation (MSC) occupied the MSC site from January 1985 to December 1986, and used the MSC site for research and development and pilot manufacturing. The chemicals used by MSC included Freon 113 and other unspecified nonflammable / chlorinated solvents, which have been found in the groundwater at the MSC site. Counsel for MSC has advised Board staff that MSC was dissolved as a corporation by the State of California on August 16, 1988.

3000 Oakmead Village Drive Limited (OVDL) is the property owner of the former Intel Magnetism Facility (IM site) located at 3000 Oakmead Village Drive, Santa Clara. Intel Magnetism (IM), a wholly owned subsidiary of the Intel Corporation (Intel), occupied the IM site from 1978 to 1987, and operated a magnetic bubble production and testing facility at the IM site. The chemicals used by IM included TCA and Freon 113 which have been found in the groundwater at the IM site.

MSC (hereinafter referred to as a discharger) is a discharger because of the releases of chemicals that have resulted from its operations while a tenant at the MSC site. KCIII (hereinafter referred to as a discharger) is a discharger because it is the current owner

of the MSC site where these releases have occurred. Kimball Small Investments III (hereinafter referred to as a discharger) is a discharger because it is a general partner of Kim Camp III and as such may be held liable for partnership debts. Campeau Corporation California (hereinafter referred to as a discharger) is a discharger because it is a general partner of Kim Camp III and may be held liable for partnership debts. Westall Corporation (hereinafter referred to as a discharger) is a discharger because it is a general partner of Kimball Small Investments III's limited partnership and may be held liable for partnership debts. To date no evidence indicates that Kim Camp III, Kimball Small Investments III, Westall Corporation, Campeau Corporation California, or 3000 Oakmead Village Drive Ltd. used the chemicals found in the groundwater at the site.

Intel (hereinafter referred to as a discharger) is a discharger because of the releases of chemicals that have resulted from its operations while a tenant at the IM site. OVDL (hereinafter referred to as a discharger) is a discharger because it is the current owner of the IM site where these releases have occurred.

2. **Site Description** The combined MSC/IM site is located in the City of Santa Clara in a relatively flat lying portion of the Santa Clara Valley. Ground surface elevations are generally between 35 feet and 41 feet above mean sea level. This is an industrial park setting, dominated by the electronics industry, particularly semiconductor manufacturing. As such, the majority of the area is developed, with large paved areas for streets and parking lots. Surface water is controlled by the storm sewer system which directs runoff to Calabazas Creek. The nearest residential areas are located 1200 feet south of the site. Other residential areas are located 6000 feet north-northeast of the combined MSC/IM site. None of these residential areas are within the area impacted by the past chemical releases from the combined MSC/IM site.
3. **Bases for Action** The combined MSC/IM site overlies the Santa Clara Valley groundwater basin. Groundwater from this basin provides up to 50% of the municipal drinking water for the 1.4 million residents of the Santa Clara Valley. In 1989, groundwater accounted for approximately 128,000 of the 315,000 acre feet of drinking water delivered to Santa Clara Valley Water District customers. The combined MSC/IM site is a Superfund site primarily because of the past chemical releases' potential threat to the quality of this valuable resource.
4. **Basin Plan** The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives and beneficial uses for South San Francisco Bay and contiguous surface and groundwaters.
5. **Beneficial Uses** The existing and potential beneficial uses of the groundwater underlying and adjacent to the combined MSC/IM site include:
 - a. Industrial process water supply
 - b. Industrial service water supply
 - c. Municipal and Domestic water supply
 - d. Agricultural water supply

6. **Regulatory Status** In early 1982, the Board initiated a leak detection program to define the extent of leakage from underground storage tanks and pipes in the South Bay area. As a result of these efforts, subsurface investigations at the IM site detected trichloroethene (TCE), trichlorethane (TCA), and Freon-113 in the A aquifer zone (the shallowest or first encountered aquifer below the ground surface) at the IM site. In May 1986 the IM was placed on the National Priority List (Superfund).

Based on the results from wells installed on the upgradient MSC site, the Board requested that KCIII conduct additional investigation on the MSC site. A September 1988 technical report prepared by Jacobs Engineering, a consulting firm under contract to EPA, concluded that, "A primary source of VOC contamination is indicated at the Micro Storage facility where maximum levels of VOC concentrations including TCE, TCA, and Freon 113 are found". The Jacobs Engineering Report also concluded that, "a secondary source of Freon 113 and possibly TCA is believed to exist at the Intel Magnetix site...". In early 1986, during the startup of the groundwater extraction system at the IM site, Freon 113 levels were initially as high as 4000 ppb in extraction well IM-E2. By December 1986, the Freon 113 levels in IM-E2 had decreased to 240 ppb, and decreased further to 27 ppb by August 1987. However, in October 1987, the Freon 113 level increased to 350 ppb. Based on quarterly monitoring well data from the combined MSC/IM site, this increase appears to be the result of a second Freon 113 plume emanating from the MSC site.

Based on the new information, submitted in late 1987 and early 1988, regarding groundwater pollution at the upgradient MSC site, EPA changed the name of the Superfund site from the Intel Magnetix site to the combined Micro Storage/Intel Magnetix site. In making this change, EPA, in an October 12, 1988 letter to Board staff, stated that "Intel is still a responsible party...". Since October 1988, EPA and the Board have regulated the MSC site and the IM site as one combined Superfund site.

In May 1990 the Board adopted Order No.89-086 which approved the Remedial Investigation/Feasibility Study (RI/FS) workplan. Order No. 89-086 was an interim Order which remained in effect while the RI/FS was being completed. Now that the RI/FS is complete, this Order acts as the long term cleanup plan and supersedes and rescinds Order No. 89-086.

Order No. 89-086 named Intel as a secondarily responsible party. This was done because Intel had been conducting investigatory and remediation activities at the combined MSC/IM site since 1982. Order No. 89-086 named KCIII as a primarily responsible party. This was done because KCIII's property was found to be the primary source of the groundwater pollution at that time and had only begun investigatory work in 1987.

In January 1991, KCIII submitted the final RI for the combined MSC/IM site. TCE and TCA isoconcentration contour maps in the RI indicate that the MSC site is the primary source of TCE and TCA at the combined MSC/IM site.

This Order elevates Intel to primary discharger status. This change is made based on the fact that KCIII's recent work has been in partial compensation for their lack of

early work at the combined MSC/IM site. The Board further finds that it would be unfair to maintain Intel as a secondarily responsible party during the long-term cleanup phase since Intel was responsible for at least a portion of the groundwater pollution at IM.

KCIII, MSC, and Intel are primarily responsible for this discharge for purposes of this Order. Intel shall not be held responsible for cleanup on the MSC site. Intel shall be responsible for the IM site and the combined offsite plume area. OVDL is secondarily responsible for the discharge for purposes of this Order. As stated in Provision C.3 of this Order, "If Intel fails to comply with any of the provisions of this Order, within 60 days of the Executive Officer's determination and actual notice to 3000 Oakmead Village Drive Ltd., as landowner, shall comply with the provisions of this Order".

Order 89-017, adopted on January 19, 1989, found that MSC was primarily responsible, and KCIII was secondarily responsible, for the discharge for purposes of Order 89-017. Based on MSC's failure to comply with the Specifications of Order 89-017, KCIII, as landowner, was determined to be primarily responsible for the discharge for purposes of Order 89-017 in a letter from the Executive Officer to KCIII dated March 24, 1989. Thus, the Board finds that KCIII is primarily responsible for this discharge for purposes of this Order.

7. **National Priority List "Superfund"** The IM site was placed on the National Priority List (NPL) in May 1986. In 1988 the MSC site was included with the IM site as one combined Superfund site. Pursuant to Health and Safety Code Sections 25356.1 (c) and (d) the only identified responsible parties associated with the release of pollutants to the subsurface at this location are MSC, Kim Camp III, Kimball Small Investments III, Westall Corporation, Campeau Corporation California, Intel, and OVDL. MSC, Kim Camp III, Kimball Small Investments III, Westall Corporation, Campeau Corporation California, Intel, and OVDL are Potentially Responsible Parties under Federal Superfund (CERCLA/SARA) regulations.

This Order is written as a joint Order for the MSC site and the IM site because the groundwater pollution plumes from both sites have commingled and because the two sites are included as one combined Superfund site on the NPL. MSC, Kim Camp III, Kimball Small Investments III, Westall Corporation, Campeau Corporation California, Intel, and OVDL are encouraged to submit joint reports. If joint reports are not submitted, each company is still individually responsible for the joint tasks in this Order.

The Board finds that TCE was detected in a monitoring well located upgradient to the Intel solvent tank in late 1982 which was three years prior to the leasing of the MSC site by Micro Storage Corp. Therefore, previous owner(s) and/or operator(s) of the MSC site may be PRPs. However, at this time, the Board has insufficient information to name any other parties as PRPs. In the future, if new evidence becomes available to the Board that other PRPs are responsible for the combined MSC/IM site, then this Order may be revised.

8. **Site Regulatory Chronology** The combined MSC/IM site is on the NPL and is regulated by Board Orders, as indicated herein:
- a. June 16, 1982 Intel submits completed Board Facility Questionnaire.
 - b. March 19, 1986 Board adopted NPDES Permit No. CA0028941 (Order No. 86-014), for the discharge of treated extracted groundwater at the IM site.
 - c. May 1986 IM site added to the final NPL.
 - d. February 2, 1987 KCIII submits its tenants' Hazardous Chemical Use History Reports
 - e. October 12, 1988 EPA changes name of site from IM to the combined MSC/IM site.
 - d. February 15, 1989 Board adopted Order No. 89-017 issuing Site Cleanup Requirements to MSC and KCIII.
 - e. March 17, 1989 Board adopted Order No. 89-086 amending Site Cleanup Requirements to MSC, KCIII, Intel, and OVDL (approving RI/FS workplan and rescinding Order No. 89-017).
 - f. March 21, 1990 Board adopted NPDES Permit No. CA0029670 (Order No. 90-040), for the discharge of treated extracted groundwater at the combined MSC/IM site.
9. **Lead Agency** Pursuant to the South Bay Multi-Site Cooperative Agreement and the South Bay Ground Water Contamination Enforcement Agreement, entered into on May 2, 1985 (as subsequently amended) by the Board, EPA and DHS, the Board has been acting as the lead agency for the combined MSC/IM site. EPA is expected to agree with the selected remedy and issue a Record of Decision following adoption by the Board of the RAP. The Board will continue as appropriate to regulate the dischargers' remediation and administer enforcement actions in accordance with CERCLA as amended by SARA, the California Water Code, Health and Safety Code, and regulations adopted there under.
10. **Subsurface Investigation** In early 1982, the Board initiated a leak detection program to define the extent of leakage from underground storage tanks and pipes in the South Bay area. As a result of these efforts, subsurface investigations at IM detected trichloroethene (TCE), trichlorethane (TCA), 1,1 dichloroethene (1,1 DCE), and Freon-113 in the A aquifer zone (the shallowest or first encountered aquifer below the ground surface) at the IM site.

The RI used data from twenty-nine A and B zone monitoring and extraction wells in an attempt to define the vertical and horizontal extent of the plume. The A zone plume covers an area approximately 850 long feet by 450 feet wide. With the exception

of monitoring well MMW-2, only one B zone sample has shown a trace level of pollution during the last four years. This trace level is likely due to laboratory contamination. Monitoring well MMW-2 appears to be screened across both the A and B aquifers. In 1990, MMW-2 had an average concentration of TCE of 32 ppb. Board Order No. 91-100 requires Metropolitan Life Insurance Company to consider replacing MMW-2 with a mono-aquifer screened well and properly destroy MMW-2.

Based on data from the April 1991 sampling round, the only chemicals detected in the A zone above drinking water standards were TCE, 1,1-DCE, 1,2-DCE, and Freon-113 at maximum levels of 580, 13, 43, and 3500 parts per billion (ppb) respectively.

11. **Source Investigation** The RI has identified two potential source areas for the groundwater pollution: 1) a 500 gallon underground storage tank located on the IM site, and 2) an above ground outdoor chemical storage area located on the MSC site.
- 11.1 **Intel Source Investigation** A secondary source of groundwater pollution is associated with the former underground waste solvent storage tank at IM. In July 1985, the tank and 35 cubic yards of soil were excavated from the IM site. The tank was reportedly tested both in the ground and after its removal and found to not have any leaks. The chemicals used by IM included TCA and Freon 113.
- 11.2 **MSC Source Investigation** No discrete source of the groundwater pollution has been positively located at MSC. No underground tanks, sumps, or piping (except piping for water, natural gas, electrical or domestic sewage) are known to have been installed at the Micro Storage property. However, Micro Storage reported that they did store chemicals in 55 gallon drums in an external above-ground storage area. The chemicals used by Micro Storage included Freon-113 and other unspecified nonflammable chlorinated solvents.

Currently, the highest levels of groundwater pollution are beneath the parking lot of the MSC site. Vadose zone sources generally overlie the area of highest groundwater pollution. In an attempt to characterize the soil pollution at the MSC site, KCIII collected and analyzed 37 shallow soil samples collected from 17 borings. In addition, 70 soil gas samples were collected during three soil gas surveys. Normally these 107 data points would be considered sufficient for characterizing an area of this size (approximately 1 acre). However, confirmation soil and soil gas sampling has yielded contradictory results. For example, the soil samples collected in June 1988 contained an average of approximately 120,000 parts per billion (ppb), Freon-113. Confirmation soil samples collected in 1989 and 1990 contained a maximum of 6.4 ppb Freon-113. Similar contradictions are also noted in the soil gas survey. For example, SG-10 (collected in October 1987) contained 84 ppb Freon-113. Confirmation soil gas sampling at SG-59 (collected in April 1989) contained 2270 ppb Freon-113.

While some of the data was contradictory, the majority of the data supports the conclusions presented in the RI that the VOCs detected represent a limited release confined to the parking lot near the former storage area. Soil, soil-gas and groundwater data suggests that the original source of VOCs has leached or volatilized out of the source area and that only low levels of VOCs remain. These low levels are

not prone to impacting the groundwater, and no further soil action is recommended.

12. **Regional Hydrogeology** The combined MSC/IM site is located near the center of the Santa Clara Valley which extends southeast from San Francisco Bay and is bounded by the Diablo Range on the northeast, and by the Santa Cruz and Gabilan Ranges on the southwest.

The Santa Clara Valley is a large structural depression in the Central Coastal Ranges of California. The Valley is filled with alluvial and fluvial deposits from the adjacent mountain ranges. These deposits are up to 1,500 feet in thickness. At the base of the adjacent mountains, gently sloping alluvial fans of the basin tributaries laterally merge to form an alluvial apron extending into the interior of the basin.

The Santa Clara Valley groundwater basin is divided into two broad areas: 1) the forebay, and 2) the confined area, where the combined MSC/IM site is located. The forebay occurs along the elevated edges of the basin where the basin receives its principal recharge. The confined area is located in the flatter interior portion of the basin and is stratified or divided in individual beds separated by significant aquitards. The confined area is divided into the upper and lower aquifer zones. The division is formed by an extensive regional aquitard that occurs at depths ranging from about 100 feet near the confined area's southern boundary to about 150 to 250 feet in the center of the confined area and beneath San Francisco Bay. Thickness of this regional aquitard varies from about 20 feet to over 100 feet.

Several aquifer systems occur in the upper aquifer zone separated by aquitards which may be leaky or very tight. Groundwater pollution at the combined MSC/IM site is confined to the shallowmost zone within the upper aquifer zone. The lower aquifer zone occurs beneath the practically impermeable regional aquitard. Numerous individual aquifers occur within this predominantly aquitard zone and all groundwater in this zone occurs confined (Santa Clara Valley Water District, Geology and Water Quality, 1989).

Municipal water supply wells are generally perforated in the lower aquifer zone. Perforated intervals in City of Santa Clara water supply wells located within 2 miles of the combined MSC/IM site begin from 250 to 320 feet below ground surface, although sanitary seals are only installed down to 100 feet below ground surface. Currently, the nearest municipal drinking water supply well downgradient of the combined MSC/IM site is the City of Santa Clara's Well No. 33 located 1.8 miles north of the combined MSC/IM site. No pollutants have been found in this well to date.

13. **Site Hydrogeology** Two shallow aquifer zones have been identified beneath the combined MSC/IM site. These shallow aquifer zones are subdivisions of the upper aquifer zone described in Finding 12. The shallowest, or A aquifer zone (A zone), has its upper boundary at about 10 feet below ground surface (BGS), and lower boundary about 20 feet BGS. The B aquifer zone (B zone) lies between about 30 and 40 feet BGS. The two zones are separated by a 2 to 10 feet thick aquitard composed of clay to silty sand. It is suspected that hydraulic separation between the two zones is imperfect owing to the discontinuous nature of sediment types. Shallow groundwater flow in

the A and B zone, beneath the combined MSC/IM site, is generally to the north-east. This flow regime is consistent with the northerly regional flow towards the San Francisco Bay.

14. **State Board Resolution 88-63** On March 30, 1989, the Regional Board incorporated the State Board Policy of "Sources of Drinking Water" into the Basin Plan. The policy provides for a municipal and domestic supply designation for all waters of the State with some exceptions. Groundwaters of the State are considered to be suitable or potentially suitable for municipal or domestic supply with the exception of where: 1) the total dissolved solids in the groundwater exceed 3000 mg/L, and/or 2) the water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day. Based on data submitted by KCIII and Intel, the Board finds that neither of these two exceptions apply to the A and B zones at the combined MSC/IM site. Thus, the A and B zones at the combined MSC/IM site are potential sources of drinking water.
15. **Vertical Conduit Study** A well search for abandoned agricultural wells within 1/2 mile radius of the combined MSC/IM site was completed in August 1989. The focus of the well search was to identify wells that potentially may form migration pathways to the deeper aquifer. This study also evaluated whether existing monitoring wells could provide a conduit between the polluted A zone and the clean B zone. The study identified three former agricultural wells (06S1W28K02, 06S1W28K03, and 06S1W28K05) located approximately 750-1000 feet northeast of the leading edge of the plume. Well 06S1W28K05 was subsequently destroyed by Avantek Inc. in 1990. No well destruction information was available on the other two wells. Since these wells lie over 750 feet beyond the leading edge of the plume, no further work was required of the dischargers.

The vertical conduit study also determined that four existing monitoring wells had the potential to cross contaminate the B zone. These four wells (IM-5, 6, 8, and 9) were properly destroyed in 1990.

16. **Interim Remedial Actions** Interim remedial measures (IRM) at MSC have included the extraction of polluted groundwater and the removal of all chemicals stored on the combined MSC/IM site. IRMs at the IM site have included the extraction of polluted groundwater, the replacement of the underground solvent tank and excavation of contaminated soils.

Between 1986 and 1990 Intel extracted and treated groundwater from two IM site wells. The treated water was discharged to a storm sewer system tributary of Calabazas Creek as specified under NPDES Permit #CA0028941.

In January 1991, KCIII began operation of an expanded groundwater extraction and treatment system on the MSC site. This system pumps water from an existing IM site extraction well and three new extraction wells located on the MSC site. The treated water is discharged to a storm sewer system tributary of Calabazas Creek as specified under NPDES Permit #CA0029670.

17. **Metropolitan Corporate Center** A separate VOC groundwater plume has been identified beneath a property located immediately west of the MSC site (see Figure 2). The property, known as the Metropolitan Corporate Center (MCC), is located at 3165 Kifer Road, Santa Clara and owned by the Metropolitan Life Insurance Company (Metropolitan). TCE has been detected in groundwater monitoring wells at levels up to 180 ppb and in reconnaissance groundwater samples at levels up to 400 ppb. To date, no source has been located for the MCC plume. No underground solvent storage tanks are known to have been installed at the MCC property. While the lateral and vertical extent of the MCC plume has not been completely defined, data submitted by both Metropolitan and KCIII indicate that either the plumes are not commingled or they are only commingled near the lateral leading edge at levels less than approximately 50 ppb total VOCs.

On June 19, 1991, the Board adopted Order No. 91-100 issuing Site Cleanup Requirements to Metropolitan for the MCC Site. Because the MCC plume and the MSC/IM plume are in close proximity to each other, Provision 2 of both the MCC Order and this Order require that the operation of any extraction system at the MCC and MSC/IM sites be done in a coordinated effort. This coordinated effort includes locating extraction wells and selecting pumping rates that maximize pollutant removal and minimize the hydraulic effects on the other site's groundwater plume.

18. **Baseline Public Health Evaluation** A Baseline Public Health Evaluation (BPHE) dated May 1, 1990, was prepared by Clement Associates Inc. under contract to the Board. The BPHE was conducted to evaluate current and potential future health risks posed by the combined MSC/IM site. Since the shallow zone groundwater from beneath the combined MSC/IM site is not currently used for drinking water supply, no current risk was identified at the combined MSC/IM site. Potential future health risks are based on exposures that could occur in the future if untreated shallow zone groundwater was used for human consumption and residential development occurred on the combined MSC/IM site. To ensure that human health is protected, the BPHE incorporated conservative assumptions. Therefore, it is unlikely that the actual risks posed by the combined MSC/IM site in the future would be greater than estimated. Average case and maximum case scenarios are presented in the BPHE. This finding refers to the maximum case scenarios using a 30 year duration exposure.

Using the above hypothetical scenario of future groundwater use, the carcinogenic risk from ingestion and inhalation of VOCs is 1×10^{-3} . A carcinogenic risk of 1×10^{-3} is equal to one excess occurrence of cancer in a population of 1000. EPA's acceptable carcinogenic risk range for cleanup standards selected for a site is 10^{-4} (1 in 10,000) to 10^{-6} (1 in 1,000,000).

Using the same scenario, the noncarcinogenic Hazard Index for ingestion and inhalation of VOCs from the use of shallow groundwater is 5.0. EPA's acceptable Hazard Index for cleanup standards selected for a site is less than or equal to 1.0.

Thus the carcinogenic risk and Hazard Index associated with a "no action" remedy exceed EPA's acceptable carcinogenic risk and Hazard Index range.

EPA also requires that risks at the site be evaluated relative to the affects on critical habitats and endangered species. The combined MSC/IM site is located near the geographic center of the City of Santa Clara, in a commercial-light industrial setting. No parks or surface water are adjacent to the site. Over 80% of the property is covered with blacktop or a building slab. Chemical constituents are only present in the shallow groundwater. Therefore, Board staff believes that there is no probable pathway for exposure to critical habitats or endangered species.

19. **Remedial Investigation/Feasibility Study/Proposed Remedial Action Plan (RI/FS/RAP)** KCIII has submitted a RI/FS dated January 9, 1991, which satisfies the requirements of Board Order 89-086. This RI/FS and the BPHE serves as the basis for, as well as part of this, proposed RAP. The technical information contained in the RI/FS and the Board's Proposed Plan Fact Sheet is consistent with the Health and Safety Code requirements for a final RAP and the National Contingency Plan requirements for a RI/FS. The RI/FS contains an evaluation of applicable or relevant and appropriate requirements (ARARs), an evaluation of the interim remedial actions, an evaluation of final remedial alternatives, and proposed remedial standards.

Board staff have determined that the technical information contained in the dischargers' RI/FS is acceptable for developing a final cleanup plan; however, the Board and other agency staff do not accept all interpretations and recommendations contained in the RI/FS.

In making this determination, staff disagreed with the portions of the RI addressing the extent of the groundwater pollution along the northwest edge of the plume. Board staff interpret the water quality data differently than is shown in the RI. The Board finds that these issues are resolved in an Agency Addendum to the RI, rather than in another revised version of the RI. This Agency Addendum is included as Attachment A of this Order.

20. **Data Quality** Development of the Board's final Remedial Action Plan was based on four criteria: 1) data was collected following an approved sampling and analysis plan, 2) random sample splits were collected by Board staff to confirm the validity of data generated by Intel and KCIII, 3) selected data was validated by the Department of Health Services and found to be qualitatively and quantitatively acceptable, and 4) there has been reasonable repeatability of the data based on six years of monitoring. Thus, the Board finds that there is sufficient acceptable data to make cleanup decisions.
21. **Remediation Alternatives** The Feasibility Study initially screened 21 remedial action technologies. These technologies were screened based on implementability, effectiveness, and cost criteria. The remedial technologies that survived the screening were assembled into a group of alternatives as follows:

Remedial Alternative 1

Remedial Alternative 1 is a "no further action" alternative, retained for base-line comparison purposes in accordance with CERCLA/SARA guidance. Remedial technologies are not implemented at the combined MSC/IM site under this alternative.

The existing groundwater recovery treatment and discharge operation would cease, as would any groundwater monitoring. The total present worth cost of this alternative is negligible.

Remedial Alternative 2

Remedial Alternative 2 consists of the following:

- Deed restriction
- Groundwater monitoring

Total present worth cost = \$45,500 to \$73,100

Remedial Alternative 3

Remedial Alternative 3 consists of the following:

- Deed restriction
- Groundwater monitoring
- Groundwater extraction wells
- Carbon adsorption treatment of extracted groundwater
- Discharge of treated water to surface water under existing NPDES permit

Total present worth cost = \$629,800 to \$1,102,000

Remedial Alternative 4

Remedial Alternative 4 consists of the following:

- Deed restriction
- Groundwater monitoring
- Groundwater extraction wells
- Oxidation/reduction treatment of extracted groundwater
- Discharge of treated water to surface water under existing NPDES permit

Total present worth cost = \$1,554,400 to \$3,613,800

Remedial Alternative 5

Remedial Alternative 5 consists of the following:

- Deed restriction
- Groundwater monitoring
- Groundwater extraction wells
- Biological treatment of extracted groundwater
- Discharge of treated water to surface water under existing NPDES permit

Total present worth cost = \$1,006,900 to 1,298,800

22. **Summary of Evaluation Criteria** This section summarizes the nine evaluation criteria required by EPA to be used to compare the alternatives in the RI/FS. The alternatives were evaluated in detail with respect to the nine criteria in the FS report. A detailed analysis of the alternatives was completed in the FS. A summary of this detailed analysis is shown on Table 1.
- a. **Overall protection of human health and the environment** This criterion addresses whether a remedy provides adequate protection of human health and the environment.
 - b. **Compliance with applicable or relevant and appropriate requirements (ARARs)** This criterion addresses whether a remedy will meet all of the ARARs or other Federal and State environmental laws.
 - c. **Long-term effectiveness and permanence** This criterion refers to expected residual risk and residual chemical concentrations after cleanup standards have been met and the ability of a remedy to maintain reliable protection of human health and the environment over time.
 - d. **Reduction of toxicity, mobility or volume** This criterion refers to the anticipated performance of the treatment technologies a remedy may employ.
 - e. **Short-term effectiveness** This criterion addresses the period of time needed to achieve cleanup and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup standards are achieved.
 - f. **Implementability** This criterion refers to the technical and administrative feasibility of a remedy.
 - g. **Cost** This criterion includes estimated capital and operation and maintenance, usually presented in a 30 year present worth format.
 - h. **Support Agency Acceptance** This criterion addresses EPA's acceptance of the selected remedy and any other EPA comments.
 - i. **Community Acceptance** This criterion summarizes the public's general response to the alternatives.

23. **The Selected Remedy (Final Remedial Action Plan)**

Based on an evaluation of the alternatives of Finding 21 and criteria in Finding 22, the selected remedy (i.e., RAP) for the combined MSC/IM site is Alternative No.3. KCIII has estimated that it will take approximately 10 years to achieve groundwater cleanup standards at a cost of \$629,800 to \$1,102,000.

Based primarily on information submitted by KCIII in the RI/FS Report, this Order provides for a final RAP that includes:

- a. Continued groundwater extraction until cleanup standards are achieved in all combined MSC/IM site monitoring wells, (see Finding 24 and Table 2 for groundwater cleanup standards and see Table SMP-2 for compliance points).
 - b. Hydraulic containment of the entire groundwater plume above cleanup standards and continued groundwater extraction at the four existing wells. Provision C.4.a. requires modifications to the system in the event that the interim hydraulic control system is demonstrated not to be effective in containing and removing the groundwater pollutants.
 - c. Maintenance of hydraulic control to prohibit the further vertical and horizontal migration of the groundwater pollution. This requirement shall remain in effect until cleanup standards are achieved.
 - d. Continued quarterly groundwater monitoring at the combined MSC/IM site during the cleanup period. Water samples will continue to be collected to verify that cleanup is proceeding and that there is no migration of VOCs, above cleanup standard levels, beyond current boundaries or into the deeper B zone. The frequency of monitoring will be decreased from quarterly to triannually two years after the Executive Officer approves the report submitted in compliance with Provision C.4.a. (hydraulic control) of the Order. The frequency of monitoring will be further decreased to biannually once cleanup standards have been achieved and stabilized for one year. Detailed sampling and reporting requirements for the combined MSC/IM site are contained in the attached Self-Monitoring Plan.
 - e. Treatment of extracted groundwater with an existing carbon adsorption system. The treated groundwater will continue to be discharged to Calabazas Creek, under existing NPDES Permit No. CA0029670. The Board finds that the beneficial use of Calabazas Creek will not be affected by continuing this discharge.
 - f. A deed restriction. The dischargers shall be required to file a deed restriction prohibiting use of on-site shallow groundwater for drinking water and controlling other subsurface activities. The deed restriction shall remain in place until groundwater cleanup standards are achieved.
24. **Groundwater Cleanup Standards** The groundwater cleanup standards for the combined MSC/IM site are based on Environmental Protection Agency (EPA) maximum contaminant levels (MCLs), California Department of Health Services (DHS) MCLs (proposed or adopted), and DHS Action Levels. The cleanup standards are defined in Specification B.4 and Table 2.

As shown on Table 2, the groundwater cleanup standards for all pollutants except benzene and 1,1 DCE are Federal or State (MCLs), either adopted or proposed, whichever is more stringent. The cleanup standard for benzene and 1,1 DCE are less than their proposed or adopted MCLs. This reduction was necessary so that the

cumulative risk associated with the cleanup standards would be within acceptable levels. The final cleanup standards for the suite of chemicals detected in the shallow zone equate to a future use scenario carcinogenic risk level for groundwater ingestion and inhalation of VOCs of 1×10^{-4} (see Finding 26).

The BPHE identified 12 chemicals of potential concern in the groundwater. Cleanup standards have been assigned to all 12 chemicals. However, two of these chemicals were not used in estimating the risk associated with the cleanup standards (see Finding 25.). Chloroform was not included because it is believed to be a laboratory contaminant. Chloroform was detected in both groundwater samples and travel blanks at a maximum concentration of 3.7 ppb. 1,1,2-Trichloroethane (1,1,2-TCA) was also not included because it was detected two separate times at concentrations less than 1 ppb. In addition, 1,1,2-TCA was not detected at all during four sampling rounds in 1990.

25. **Risk Associated With Cleanup Standards** The selected remedy is protective of human health and the environment -- as required by Section 121 of CERCLA -- in that pollution in groundwater is treated to at least MCLs and falls within EPA's acceptable carcinogenic risk range and noncarcinogenic Hazard Index. EPA's acceptable carcinogenic risk range for cleanup standards selected for a site is 10^{-4} to 10^{-6} as an acceptable cleanup level (See Finding 19). If the noncarcinogenic Hazard Index is less than one, EPA considers the combined intake of chemicals unlikely to pose a health risk.

The carcinogenic risk at the cleanup standards (for all chemicals listed on Table 2) associated with the potential future use scenario of groundwater ingestion and inhalation of VOCs from groundwater, using the maximum exposure scenario is 1×10^{-4} . In cleaning up TCE to the 5 ppb cleanup standard it is quite likely that the concentrations of other VOCs will be reduced to levels below the 5 ppb range. The carcinogenic risk for TCE alone is 1.5×10^{-6} . These risks were calculated using a potential future use scenario with a 30 year duration exposure per EPA guidance.

The noncarcinogen Hazard Index associated with the cleanup standards is 0.38. The method and assumptions used to obtain the carcinogenic risk and the Hazard Index associated with the cleanup standards are contained in the FS. The cleanup standards for the combined MSC/IM site are protective of human health, have a carcinogenic risk that falls within a range of 10^{-6} to 10^{-4} , and a Hazard Index of less than one.

26. **Remedy Selection Rationale and Statutory Determinations** The selected remedy is protective of human health and the environment. Groundwater contamination is treated so that the remaining potential future risks fall within the 10^{-4} to 10^{-6} carcinogenic risk range for acceptable cleanup standards. The remedy complies with ARARs by achieving cleanup to at least Federal and State MCLs (proposed or adopted).

The selected remedy is effective in the short-term because further plume migration is controlled by groundwater extraction. The selected remedy is effective in the long-term by virtue of the fact that ARARs are achieved. Groundwater extraction and treatment is a permanent solution and significantly reduces pollutant toxicity, mobility and volume at the combined MSC/IM site. The selected remedy is implementable.

EPA staff has preliminarily approved the selected remedy.

27. **Uncertainty in Achieving Cleanup Standards** The goal of this remedial action is to restore groundwater to its beneficial uses. Based on information obtained during the RI and on analysis of all remedial alternatives, the Board believes that the selected remedy will achieve this goal. However, studies suggest that groundwater extraction and treatment will not be, in all cases, completely successful in reducing contaminants to health-based levels in the aquifer zones. The Board recognizes that operation of the selected extraction and treatment system may indicate the technical impracticability of reaching health-based groundwater quality standards using this approach. If it becomes apparent, during implementation or operation of the system, that contaminant levels have ceased to decline and are remaining constant at levels higher than the cleanup standards, that standard and the remedy may be reevaluated. However, any change to the cleanup standards or remedy will require Board and EPA approval.
28. **Future Changes to Cleanup Standards** If new information indicates cleanup standards can reasonably be surpassed, the Board will decide if further final cleanup actions, beyond those completed, shall be implemented at the combined MSC/IM site utilizing SWRCB Resolution No. 68-16. If changes in health criteria, administrative requirements, site conditions, or remediation efficiency occur, the dischargers will submit an evaluation of the effects of these changes on cleanup standards as defined in Specification B.4.

If drinking water quality cannot be achieved, the dischargers must provide explanation and appropriate documentation to demonstrate to the Board and to EPA, in accordance with 42 U.S.C. Section 9621 (d)(4), that the conditions for waiving an ARAR are met (e.g., that meeting the ARAR is technically impracticable from an engineering perspective) and that the alternative proposed will be protective of human health and the environment. The Order will then need to be modified by the Board and final approval obtained by EPA to allow a less stringent groundwater cleanup standard. The dischargers will provide all documentation and explanation requested by EPA and/or the Board in order to evaluate whether an "explanation of significant differences"(ESD) must be published in accordance with 42 U.S.C. Section 9617 (c)."

The Board recognizes that KCIII and Intel have already performed extensive investigative and remedial work onsite and that the dischargers are being ordered hereby to perform additional remedial tasks. It is in the public interest to have the dischargers undertake such remedial actions promptly and without prolonged litigation or the expenditure of public funds. The Board recognizes that an important element in encouraging the dischargers to invest substantial resources in undertaking such remedial actions is to provide the dischargers with reasonable assurances that the remedial actions called for in this Order will be the final remedial actions required to be undertaken by the dischargers. On the other hand, the Board also recognizes its responsibility to protect water quality, public health, and the environment and that future developments could indicate that some additional remedial actions may be necessary.

The Board has considered and balanced these important considerations, and has

determined that the remedial actions ordered herein represent the Board's best, current judgement of the remedial actions to be required of the dischargers. The Board will not require the dischargers to undertake additional remedial actions with respect to the matters previously described herein unless: (1) conditions on the site, previously unknown to the Board, are discovered after adoption of this Order, or (2) new information is received by the Board, in whole or in part after the date of this Order, and these previously unknown conditions or this new information indicates that the remedial actions required in this Order may not be protective of public health and the environment. The Board will also consider technical practicality, cost effectiveness, State Board Resolution No. 68-16 and other factors evaluated by the Board in issuing this Order in determining whether such additional remedial actions are appropriate and necessary.

29. **Groundwater Conservation** KCIII considered the feasibility of reclamation, reuse, or discharge to a publicly owned treatment works, as specified in Board Resolution No. 88-160, in its NPDES permit application dated January 23, 1990. Based on this evaluation, as well as a further evaluation in the FS, the Board concurs that groundwater reclamation, reuse, or discharge to a POTW at the combined MSC/IM site is not feasible.
30. **Community Involvement** An aggressive Community Relations program has been ongoing for all Santa Clara Valley Superfund sites, including the combined MSC/IM site. The Board published a notice in the Santa Clara Weekly on April 10, 1991 and April 17, 1991, announcing the proposed final RAP and opportunity for public comment at the Board Hearing of April 17, 1991 in Oakland, and announcing the opportunity for public comment at an evening public meeting at Bracher Elementary School in the City of Santa Clara on April 24, 1991. A presentation of the proposed final cleanup plan was made at the April 17, 1991 Board Hearing. A 60 day comment period ran from April 17, 1991 to June 17, 1991.

Fact Sheets for the combined MSC/IM site were mailed to interested residents, local government officials, and media representatives. Fact Sheet 1, mailed in January 1990, summarized the pollution problem, the results of investigations to date, and the interim remedial actions. Fact Sheet 2, mailed in April 1991, described the cleanup alternatives evaluated, explained the proposed final RAP, announced opportunities for public comment at the Board Hearing of April 17, 1991 in Oakland and the Public Meeting of April 24, 1991 in Santa Clara and described the availability of further information at the Information Repository at the City of Santa Clara Public Library. The Responsiveness Summary summarizes responses to significant comments received during the public comment period. Fact Sheet 3, to be mailed in August 1991, will explain the final adopted cleanup plan contained in this Order.

31. **State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California"** On October 28, 1968, the State Water Resources Control Board adopted Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California". This policy calls for maintaining the existing high quality of State waters unless it is demonstrated that any change would be consistent with the maximum public benefit and not unreasonably affect beneficial

uses. The original discharge of waste to the groundwater at the combined MSC/IM site was in violation of this policy; therefore, the groundwater quality needs to be restored to its original quality to the extent reasonable as determined by the Board in this Order.

32. **Administrative Record** The Administrative Record has been prepared in accordance with EPA Guidance, has been made available for public review, and provides the backup documentation for the recommendations of staff and decisions by the Board.
33. This Order contains a Task that requires the dischargers to prepare a proposed joint nonbinding preliminary allocation of responsibility (NBAR) report. The Board will consider the discharger's proposed NBAR report when it makes its own NBAR determination for the combined MSC/IM site. The Board will not adopt a final State RAP as defined in the Health and Safety Code until the Board completes its NBAR determination. With the exception of an NBAR determination, this Order complies with all other requirements for a State RAP. The Board expects to make a final NBAR determination within the next six months.
34. The selected remedial action plan for the combined MSC/IM site was chosen in accordance with the Health and Safety Code Section 25356.1, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), California Water Code Section 13304, and pursuant to the South Bay Multi-Site Cooperative Agreement. This decision is based on the administrative record for the combined MSC/IM site.
35. The dischargers have caused or permitted, and threaten to cause or permit waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.
36. This action is an order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the CEQA pursuant to Section 15321 of the Resources Agency Guidelines.
37. This Order supersedes and rescinds Site Cleanup Order No. 89-086 issued to the dischargers.
38. Containment and cleanup measures need to be implemented to alleviate the threat to the environment posed by the continued migration of the groundwater plume of organic solvents.
39. The Board has notified the dischargers and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.
40. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code and Section 25356.1 of the California Health and Safety Code, that the dischargers shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

B. SPECIFICATIONS

1. The storage, handling, treatment or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
2. The dischargers shall conduct monitoring activities as determined by the Board's Executive Officer to define the current local hydrogeologic conditions, and the lateral and vertical extent of soil and groundwater pollution. Should monitoring results show evidence of plume migration, additional characterization of the pollutant plume may be required.
3. All the combined MSC/IM site wells shown on Table SMP-2 of the Self-Monitoring Plan shall be used to determine if cleanup standards have been met.
4. Final cleanup standards for all onsite and offsite wells shall not be greater than the levels as provided in Finding 24. The numerical final cleanup standards, therefore, shall not exceed the levels shown on Table 2 in any well during the one year stability period as set forth in the Self-Monitoring Plan for the combined MSC/IM site.
5. The dischargers shall implement the final cleanup plan described in Finding 23.
6. Pursuant to Water Code Section 13304(c) the dischargers are hereby notified that the Board is entitled to and may seek reimbursement for all reasonable staff oversight costs incurred related to cleanup of wastes at the combined MSC/IM site, abating the effects thereof, or taking other remedial action.

C. PROVISIONS

1. The dischargers shall submit to the Board acceptable monitoring program reports containing results of work performed according to the attached self-monitoring program prescribed by the Board's Executive Officer.
2. The dischargers are required to operate the groundwater extraction system in a coordinated effort with remedial activities at the combined MSC/IM site. This coordinated effort shall include locating extraction wells and selecting pumping rates such that both sites maximize pollutant removal and minimize the hydraulic effects on the other sites groundwater plume (See Finding 17).
3.
 - a. If Intel fails to comply with any of the provisions of this Order, within 60 days of the Executive Officer's determination and actual notice, 3000 Oakmead Village Drive Ltd., as landowner, shall comply with the provisions of this Order.
 - b. If Kim Camp III fails to comply with any of the provisions of this Order, within 60 days of the Executive Officer's determination and actual notice, Kimball Small Investments III, Westall Corporation, and Campeau Corporation California, as general partners or parent company, shall comply with the provisions of this Order.
4. The dischargers shall comply with this Order immediately upon adoption. The dischargers shall comply with the PROHIBITIONS and SPECIFICATIONS described above, in accordance with the following tasks and compliance time schedules:
 - a. **NORTHWEST PLUME DEFINITION**
 - 1) **COMPLETION DATE:** July 26, 1991

TASK 1: SUBMIT PROPOSAL TO INSTALL ADDITIONAL MONITORING WELLS. Submit a technical report acceptable to the Executive Officer to fully define the northwestern extent of the plume. This proposal shall include a plan and a schedule to install and sample a minimum of two new monitoring wells: one well located midway along a line between MMW-5 and the former location of IM-8, and one located midway along a line between MMW-9 and MMW-7.
 - 2) **COMPLETION DATE:** 60 days after Board staff approval of Task 1.

TASK 2: PROPOSE COMPLIANCE POINTS. Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task 1. This report shall propose

compliance points for meeting groundwater cleanup standards in the northwest portion of the plume.

b. HYDRAULIC CONTAINMENT MEASURES

- 1) COMPLETION DATE: July 26, 1991

TASK 3: EVALUATION OF INTERIM HYDRAULIC CONTAINMENT MEASURES AND RECOMMENDATIONS FOR FURTHER ACTIONS. Submit a technical report acceptable to the Executive Officer which evaluates the effectiveness of the interim hydraulic containment system. Such an evaluation shall include, but not be limited to, an estimation of the capture zone of the extraction wells, establishment of the cones of depression by field measurements, and presentation of chemical monitoring data.

Specific modifications to the system and an implementation time schedule shall be proposed in the event that the hydraulic control system is demonstrated not to be effective in containing and removing the groundwater pollutants.

- 2) COMPLETION DATE: 120 days after Board staff approval of Task 3.

TASK 4: COMPLETION OF MODIFICATIONS TO HYDRAULIC CONTAINMENT MEASURES. Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task 3.

c. INSTITUTIONAL CONSTRAINTS

- 1) COMPLETION DATE: August 16, 1991

TASK 5: PROPOSED CONSTRAINTS. Submit a technical report acceptable to the Executive Officer documenting procedures to be implemented by the dischargers, including a deed restriction prohibiting the use of the A zone groundwater as a source of drinking water, and for controlling onsite activities that could endanger the public health or the environment due to exposure to VOCs. Constraints shall remain in effect until groundwater cleanup standards have been achieved and pollutant levels have stabilized in onsite aquifers.

- 2) COMPLETION DATE: 60 days after Board staff approval of Task 5.

TASK 6: CONSTRAINTS IMPLEMENTED. Submit a technical report acceptable to the Executive Officer documenting that the proposed and approved constraints have been implemented.

d. UPDATING ADMINISTRATIVE RECORD

- 1) **COMPLETION DATE:** August 1, 1991

TASK 7: PROPOSED UPDATE. Submit a technical report acceptable to the Executive Officer containing an updated index for the Administrative Record for the period January 9, 1991 to July 26, 1991.

- 2) **COMPLETION DATE:** August 15, 1991

TASK 8: UPDATE ADMINISTRATIVE RECORD. Submit a technical report acceptable to the Executive Officer containing the updated Administrative Record for the period January 9, 1991 to July 26, 1991.

e. PROPOSED PRELIMINARY NONBINDING ALLOCATION OF RESPONSIBILITY REPORT

- 1) **COMPLETION DATE:** September 20, 1991

TASK 9: Submit a joint technical report acceptable to the Executive Officer containing a proposed nonbinding allocation of responsibility. This report shall be sent by certified mail to all companies named in the report.

f. EXTRACTION SYSTEM AND MONITORING WELL SYSTEM

- 1) **COMPLETION DATE:** 90 days prior to modifying the existing extraction system or monitoring well system.

TASK 10: MODIFYING EXISTING EXTRACTION SYSTEM OR MONITORING WELL SYSTEM. Submit a technical report acceptable to the Executive Officer which documents a proposal and schedule to modify, workover or replace any existing extraction well, or install one or more new extraction wells or pits associated with cleanup activities at the combined MSC/IM site; or a proposal and schedule to modify the monitoring well system by making major well-construction changes, abandoning an existing well(s) or installing a new well(s).

This report is required only if a change in the extraction system and/or monitoring system is proposed, and for all such changes that are proposed.

- 2) COMPLETION DATE: 30 days following implementation by the dischargers

TASK 11: IMPLEMENTATION OF CHANGE. Submit a technical report acceptable to the Executive Officer which documents any change made in the extraction system and/or monitoring well system.

g. CURTAILING GROUNDWATER EXTRACTION

- 1) COMPLETION DATE: 90 days prior to proposed implementation of groundwater extraction curtailment

TASK 12: WELL PUMPING CURTAILMENT CRITERIA AND PROPOSAL. Submit a technical report acceptable to the Executive Officer containing a proposal and schedule for curtailing pumping from groundwater extraction well(s) and pit(s) and the criteria used to justify such curtailment. This report shall include data to show that groundwater cleanup standards for all VOCs have been achieved and pollutant levels have stabilized or are stabilizing, and that the potential for pollutant levels rising above cleanup standards is minimal. This report shall also include an evaluation of the potential for pollutants to migrate downwards to the deeper aquifers.

If the dischargers propose that it is not feasible to achieve cleanup standards, the report shall evaluate the alternative standards that can be achieved and provide explanation and appropriate documentation to establish an exception under 42 U.S.C. Section 9621(d)(4). In addition, the dischargers will provide all documentation and explanation requested by EPA and/or the Board in order to evaluate whether an "explanation of significant differences" (ESD) must be published in accordance with 42 U.S.C. Section 9617 (c)." Full curtailment must be approved by the Board and the Regional Administrator of EPA. In considering any change to cleanup standards, consideration must also be given to maintaining hydraulic control so that the adjacent unpolluted groundwater is not affected by the pollutant plume.

- 2) COMPLETION DATE: 30 days after the Board approves curtailment

TASK 13: IMPLEMENTATION OF CURTAILMENT. Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task 12.

h. STATUS REPORT

- 1) COMPLETION DATE: June 19, 1996

TASK 14: FIVE-YEAR STATUS REPORT AND EFFECTIVENESS EVALUATION. Submit a technical report acceptable to the Executive Officer containing the results of any additional investigation including results from the reinjection study; an evaluation of the effectiveness of installed final cleanup measures and cleanup costs; additional recommended measures to achieve final cleanup standards, if necessary; a comparison of previous expected costs with the costs incurred and projected costs necessary to achieve cleanup standards; and the tasks and time schedule necessary to implement any additional final cleanup measures. This report shall also describe all reuse of extracted groundwater and evaluate and document the cleanup of polluted groundwater. If cleanup standards have not been achieved and are not expected to be achieved through continued groundwater extraction and/or soil remediation, this report shall also contain an evaluation addressing whether it is technically feasible to achieve cleanup standards, and if so, a proposal and schedule for procedures to do so. This report may be contained in the quarterly status report due June 19, 1996.

i. NEW HEALTH CRITERIA

- 1) COMPLETION DATE: 60 days after request made by the Executive Officer

TASK 15: EVALUATION OF NEW HEALTH CRITERIA. Submit a technical report acceptable to the Executive Officer which contains an evaluation of how the final plan and cleanup standards would be affected, if the concentrations as listed in Specification B.4. change as a result of promulgation of new or revised drinking water standards, maximum contaminant levels or action levels.

j. NEW TECHNICAL INFORMATION

- 1) COMPLETION DATE: 60 days after request made by the Executive Officer

TASK 16: EVALUATION OF NEW TECHNICAL INFORMATION. Submit a technical report acceptable to the Executive Officer which contains an evaluation of new technical and economic information which indicates that cleanup standards and/or technology in some areas may be considered for revision. Such technical reports shall not be required unless the Executive Officer or the Board determines that such new information indicates a reasonable possibility that the Order may need to be changed under the criteria described in Finding 28.

5. The submittal of technical reports evaluating final remedial measures will include a projection of the cost, effectiveness, benefits, and impact on public health, welfare, and environment of each alternative measure. If any additional remedial investigations and feasibility studies are found to be necessary, they shall be consistent with the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300); Section 25356.1 (c) of the California Health and Safety Code; CERCLA guidance documents with reference to Remedial Investigations, Feasibility Studies, and Removal Actions; and the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California".
6. If the dischargers are delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the dischargers shall promptly notify the Executive Officer and the Board may consider revisions to this Order.
7. Quarterly technical reports (quarterly reports) summarizing the status of compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted on a quarterly basis. MSC, Kim Camp III, Kimball Small Investments III, Westall Corporation, Campeau Corporation California, Intel, and OVDL are encouraged to submit joint quarterly reports. If joint quarterly reports are not submitted, each company is still individually responsible for submitting quarterly reports. Quarterly reports shall be submitted according to the schedule below, commencing with the report for the second quarter 1991, due July 31, 1991.

QUARTER	First	Second	Third	Fourth
PERIOD	Jan.-March	April-June	July-Sept.	Oct.-Dec.
DUE DATE	April 30	July 31	October 31	January 31

The quarterly reports shall include:

- a. a summary of work completed since the previous quarterly report, and work projected to be completed by the time of the next quarterly report,
 - b. appropriately scaled and labeled maps showing the location of all monitoring wells, extraction wells, and existing structures,
 - c. cross sections depicting subsurface geologic information and corresponding correlations showing actual boring lithology data if new information has changed interpretations since the previous quarter,
 - d. updated water table and piezometric surface maps for all affected water bearing zones, and isoconcentration maps for key pollutants in all affected water bearing zones,
 - e. a cumulative tabulation of all well construction data, groundwater levels and chemical analysis results for the combined MSC/IM site monitoring wells specified in the sampling plan,
 - f. copies of the original water sample field data sheets showing all field measurements as described in the August 1989 Sampling and Analysis Plan for the combined MSC/IM site, submitted by J.V.Lowney and Associates on behalf of KCIII,
 - g. an estimation of the number of pounds of pollutants removed from the groundwater during the quarter and an estimation of the number of pounds of pollutants removed from the groundwater since extraction began in 1985,
 - h. identification of potential problems which will cause or threaten to cause noncompliance with this Order and what actions are being taken or planned to prevent these obstacles from resulting in noncompliance with this Order, and
 - i. in the event of noncompliance with the Provisions and Specifications of this Order, the report shall include written justification for noncompliance and proposed actions and compliance time schedule to achieve compliance.
8. On an annual basis beginning on January 31, 1992 or as required by the Executive Officer, the dischargers' January 31 progress reports shall include, but need not be limited to, an evaluation of the progress of cleanup measures and the feasibility of meeting groundwater cleanup standards established in this Order. This report shall include a discussion of the efficiency of the existing groundwater extraction wells at removing groundwater pollution during the previous year. If significant reductions in groundwater pollution levels are not being achieved, then the report shall propose construction of new and/or alternative extraction wells in order to increase the

efficiency of the groundwater extraction system. If the dischargers propose that it is not technically feasible to meet the cleanup standards established by this Order, the report shall also contain an evaluation of maximum cleanup levels that could be achieved.

9. All hydrogeological plans, specifications, reports, and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist or professional engineer.
10. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods, where available, for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
11. The dischargers shall maintain in good working order, and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.
12. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:
 - a. Santa Clara Valley Water District
 - b. Santa Clara County Health Department
 - c. U. S. Environmental Protection Agency, Region IX (H-6-3)
 - d. City of Santa Clara

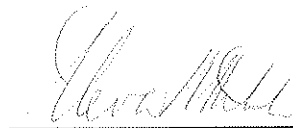
The Executive Officer may additionally require copies of correspondence, reports and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order to be provided to a local repository for public use.

Each of the dischargers shall provide copies of all correspondence, reports and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, to each of the other dischargers named in this Order.

13. The dischargers shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:
 - a. Entry upon premises in which any pollution sources exist (consistent with the Health & Safety Plan and Sampling & Analysis Plan for the combined MSC/IM site, dated March 29, 1989 submitted by J.V.Lowney and Associates on behalf of KCIII both as may be amended), or may potentially exist, or in which any required records are kept, which are relevant to this Order.
 - b. Access to copy any records required to be kept under the terms and conditions of this Order.

- c. Inspection of any monitoring equipment or methodology implemented in response to this Order.
 - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the dischargers.
- 14. KCIII shall file a report with the Board prior to any changes in occupancy and ownership associated with the MSC site described in this Order.
 - 15. 3000 Oakmead Village Drive Ltd. shall file a report with the Board prior to any changes in occupancy and ownership associated with the IM site described in this Order.
 - 16. If any hazardous substance, as defined pursuant to Section 25140 of the California Health and Safety Code, is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged in or on any waters of the state, the dischargers shall report such discharge to this Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-business hours. A written report shall be filed with the Board within five (5) working days and shall contain information relative to: the nature of waste or pollutant, quantity involved, duration of incident, cause of spill, Spill Prevention, Control, and Countermeasure Plan (SPCC) in effect, if any, estimated size of affected area, nature of effect, corrective measures that have been taken or planned, and a schedule of these activities, and persons/agencies notified.
 - 17. The Board will review this Order periodically and may revise the requirements when necessary.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on July 17, 1991.



Steven R. Ritchie
Executive Officer

Attachments: Figure 1. Location Map
Figure 2. Site Map
Table 1. Remedial Alternatives Summary
Table 2. Final Cleanup Standards
Attachment A - Addendum to the RI/FS Report
Attachment B - Self-Monitoring Program

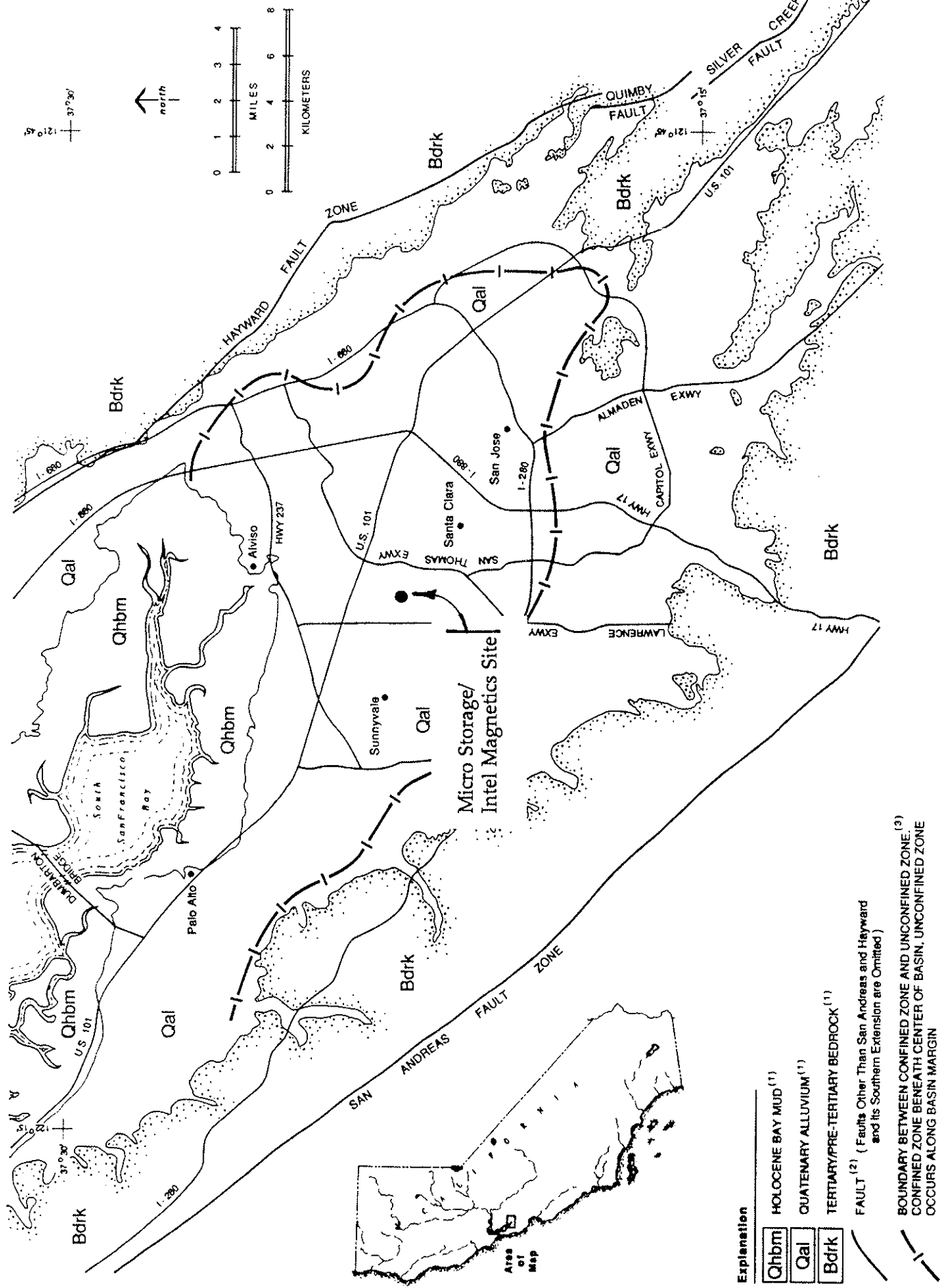


Figure 1. Micro Storage/Intel Magnetics Locality Map

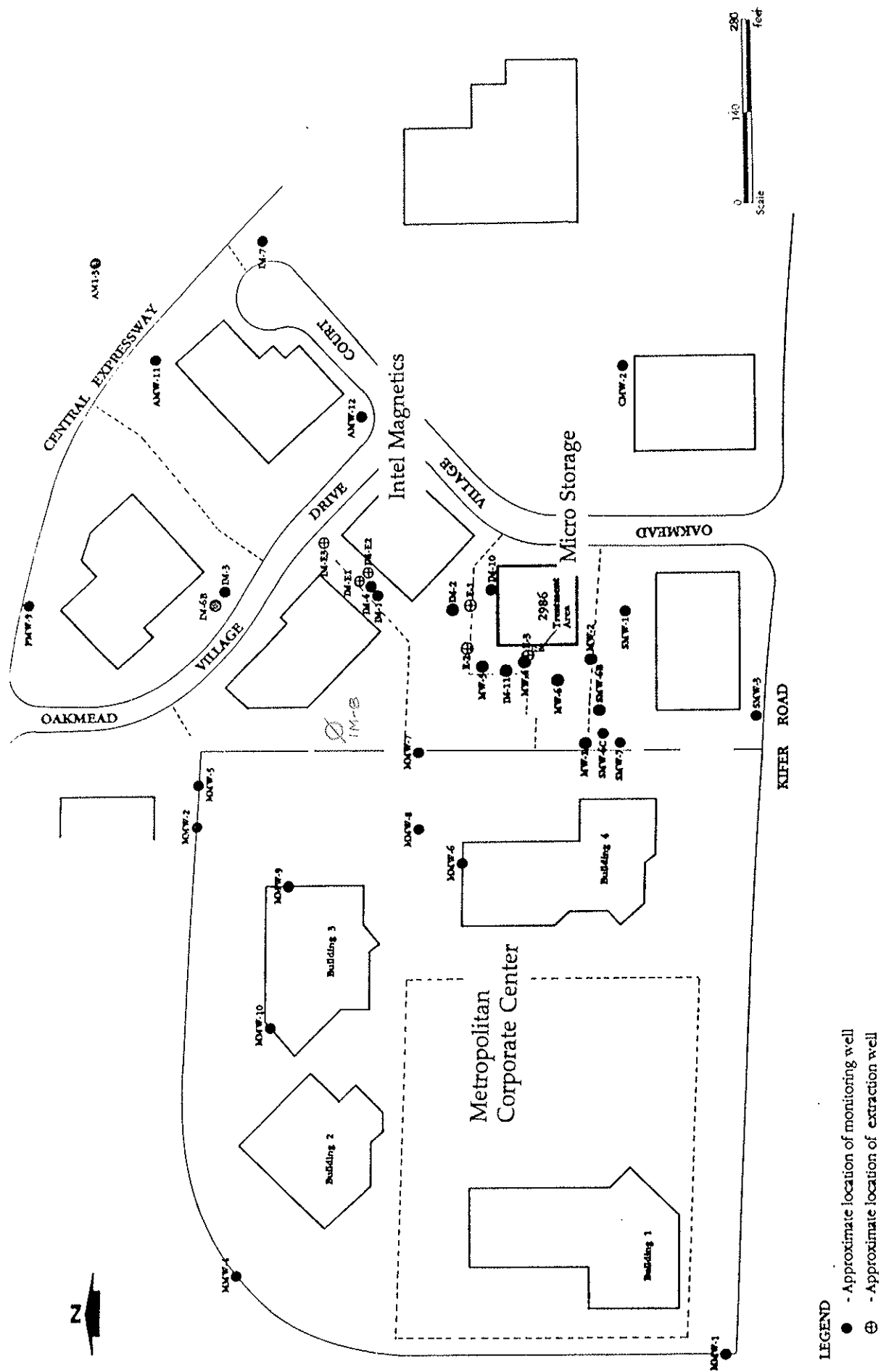


Figure 2. Micro Storage/Intel Magnetics Site Map

TABLE 1 Comparison of Alternatives,
2986 and 3000 Oakmead Village Court,
Santa Clara, California

	Alternative I <u>No Action</u>	Alternative II Institutional Controls and Ground Water	Alternative III Ground Water Extraction and <u>GAC Treatment</u>	Alternative IV Ground Water Extraction and Oxidation/ <u>Reduction Treatment</u>	Alternative V Ground Water Extraction and <u>Biological Treatment</u>
1. Compliance With ARARs					
- Chemical Specific	Would take several decades or longer to achieve clean-up standards	Would take several decades or longer to achieve clean-up standards	Would be achieved. Clean-up standards likely would be achieved in approximately 10 to 12 years	Would be achieved. Clean-up standards likely would be achieved in approximately 10 to 12 years	Would be achieved. Clean-up standards likely would be achieved in approximately 10 to 12 years
- Action Specific	No action	No action	Complies with surface water discharge permit requirements	Complies with surface water discharge permit requirements; wastes would be handled in accordance with applicable laws	Complies with surface water discharge permit requirements
- Location Specific	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
2. Short Term Effectiveness					
- Protection of Community	No additional risks. Does not prevent the use of the affected ground water	No additional risks. Prevents the use of affected ground water as a drinking water source	No additional risks. The plume would be contained	No additional risks. The plume would be contained	No additional risks. The plume would be contained
- Protection of Workers	No additional risks	No additional risks	No additional risks	No additional risks	No additional risks
-Environmental Impacts	Discharge of impacted ground water to nearby creeks and/or SF Bay unlikely. Current impact probably negligible	Discharge of impacted ground water to nearby creeks and/or SF Bay unlikely. Current impact probably negligible	The plume would be contained. No impact	The plume would be contained. No impact	The plume would be contained. No impact
- Approximate Time Until Clean-up Standards Are Met	Several decades or longer	Several decades or longer	10 to 12 years	10 to 12 years	10 to 12 years

TABLE 13. Comparison of Alternatives, 2986 and 3000 Oakmead Village Court, Santa Clara, California
(continued)

	Alternative I <u>No Action</u>	Alternative II Institutional Controls and <u>Ground Water</u>	Alternative III Ground Water Extraction and <u>GAC Treatment</u>	Alternative IV Ground Water Extraction and Oxidation/ <u>Reduction Treatment</u>	Alternative V Ground Water Extraction and <u>Biological Treatment</u>
3. Long Term Effectiveness and Permanence					
- Magnitude of Residual Risk	Will not change current level of risk, but level of risk will decrease with time. Affected ground water will be above clean-up standards for several decades or longer.	Will not change current level of risk, but level of risk will decrease with time. Affected ground water will be above clean-up standards for several decades or longer.	Ground water will eventually be restored to safe drinking water standards, if technically possible	Ground water will eventually be restored to safe drinking water standards, if technically possible	Ground water will eventually be restored to safe drinking water standards, if technically possible
- Adequacy of Controls	No controls involved	Adequate to prevent potential exposure to humans	Adequate to prevent potential exposure to humans	Adequate to prevent potential exposure to humans	Adequate to prevent potential exposure to humans
- Permanence of Remedial Action	Permanent	Permanent	Permanent	Permanent	Permanent
- Effectiveness in Achieving Remedial Action Objectives	Remedial objectives will be met in several decades or longer by natural attenuation processes	Remedial objectives will be met in several decades or longer by natural attenuation processes	Remedial objectives will be met to the extent technically feasible	Remedial objectives will be met to the extent technically feasible	Remedial objectives will be met to the extent technically feasible
4. Reduction of Toxicity, Mobility and Volume through Treatment					
- Amount of Hazardous Material Treated	None	None	Approximately 2,050,000 gallons affected ground water treated per year. Greater than 99 percent VOC removal prior to discharge	Approximately 2,050,000 gallons affected ground water treated per year. Greater than 99 percent VOC removal prior to discharge	Approximately 2,050,000 gallons affected ground water treated per year. Greater than 99 percent VOC removal prior to discharge

TABLE 13. Comparison of Alternatives.
2986 and 3000 Oakmead Village Court,
Santa Clara, California
(continued)

	Alternative I <u>No Action</u>	Alternative II Institutional Controls and <u>Ground Water</u>	Alternative III Ground Water Extraction and <u>GAC Treatment</u>	Alternative IV Ground Water Extraction and Oxidation/ <u>Reduction Treatment</u>	Alternative V Ground Water Extraction and <u>Biological Treatment</u>
4. Reduction of Toxicity, Mobility and Volume through Treatment (continued)					
- Reduction of Toxicity, Mobility and Volume	None	None	All significantly reduced	All significantly reduced	All significantly reduced
- Irreversible Treatment	None	None	Yes	Yes	Yes
- Type and Quantity of Treatment Residual	None	None	Approximately 2,000 to 4,000 pounds of spent carbon per year requiring disposal/regeneration	None	None
5. Overall Protection of Human Health and the Environment					
- Human Health	Currently no risk to human health, however, does not prevent the future use of the affected ground water as a drinking water source	Prevents the present and future use of the affected ground water as a drinking water source	Protects present and future human health and environment	Protects present and future human health and environment	Protects present and future human health and environment
- Environment	Negligible impact since discharge of impacted ground water to the SF Bay and vicinity creeks unlikely	Negligible impact since discharge of impacted ground water to the SF Bay and vicinity creeks unlikely	Plume contained. Discharge of treated ground water to Calabazas Creek under NPDES permit	Plume contained. Discharge of treated ground water to Calabazas Creek under NPDES permit	Plume contained. Discharge of treated ground water to Calabazas Creek under NPDES permit

TABLE 13. Comparison of Alternatives.
2986 and 3000 Oakmead Village Court,
Santa Clara, California
(continued)

	Alternative I <u>No Action</u>	Alternative II Institutional Controls and <u>Ground Water</u>	Alternative III Ground Water Extraction and <u>GAC Treatment</u>	Alternative IV Ground Water Extraction and Oxidation/ <u>Reduction Treatment</u>	Alternative V Extraction and <u>Biological Treatment</u>
6. Implementability					
- Technical Feasibility	No construction required	No construction required	System constructed and operational	Oxidation/Reduction unit would likely have to be custom manufactured	Bioreactor would likely have to be custom manufactured. Pilot study would have to be conducted
- Administrative Feasibility	Very little administrative work required	Easily implemented. Enforcement of deed restrictions could be difficult	Required permits already obtained.	Required permits already obtained	Required permits already obtained
- Availability of Materials and Services	None required	None required	Services, components and materials easily obtained. Carbon can be replaced with one to two days notice	Experience technicians to maintain unit may not be readily available	Experienced technicians to perform daily maintenance operations may not be readily available
7. Costs					
- Capital	\$0	\$5,000 to \$8,000	\$119,000	\$168,000	\$188,000
- Annual O & M	\$0	\$5,000 to \$8,000	\$63,000 to \$121,000	\$171,000 to \$407,000	\$101,000 to \$137,000
Present Worth Analysis					
- 10 years of operation	\$0	\$45,500 to \$73,100	\$629,800 to \$1,102,000	\$1,554,400 to \$3,613,800	\$1,006,900 to \$1,298,800
- 12 years of operation	\$0	\$51,500 to \$82,700	\$705,300 to \$1,247,000	\$1,759,400 to \$4,123,200	\$1,127,900 to \$1,463,000

TABLE 13. Comparison of Alternatives.
2986 and 3000 Oakmead Village Court,
Santa Clara, California
(continued)

	Alternative I No Action	Alternative II Institutional Controls and Ground Water Acceptance unlikely to be granted.	Alternative III Ground Water Extraction and GAC Treatment Ground water extraction and treatment are approved technologies by the CRWQCB and EPA. NPDES permit has been issued for the site.	Alternative IV Ground Water Extraction and Oxidation/ Reduction Treatment Ground water extraction and treatment are approved technologies by the CRWQCB and EPA. NPDES permit has been issued for the site.	Alternative V Ground Water Extraction and Biological Treatment Ground water extraction and treatment are approved technologies by the CRWQCB and EPA. NPDES permit has been issued for the site.
8. State Acceptance	Acceptance unlikely to be granted.	Acceptance unlikely to be granted.	Acceptance unlikely to be granted.	Acceptance unlikely to be granted.	Acceptance unlikely to be granted.
9. Community Acceptance	Public reaction likely to be negative.	Public reaction likely to be negative.	Public reaction likely to be positive since ground water extraction and treatment has been implemented at the site since 1985.	Public reaction likely to be positive since ground water extraction and treatment has been implemented at the site since 1985.	Public reaction likely to be positive since ground water extraction and treatment has been implemented at the site since 1985.

TABLE 2

GROUNDWATER CLEANUP STANDARDS

The Combined Micro Storage/Intel Magnetis Site
 2986 Oakmead Village Court and 3000 Oakmead Village Drive
 Santa Clara, Santa Clara County

(all values in $\mu\text{g/l}$)

COMPOUND	FEDERAL MCLG	FEDERAL MCL	CA ACTION LEVEL	CA MCL	CLEANUP STANDARD
Chloroform	--	100 TT	--	--	100
1,1-Dichloroethane	--	--	--	5	5
cis 1,2-Dichloroethene	70	70	--	6	6
trans 1,2-Dichloroethene	100	100	--	10	10
1,1-Dichloroethene	7	7	--	6	4
Freon 113	--	--	--	1200	1200
Methylene Chloride	(0)	(5)	40	--	40
Tetrachloroethene	0	5	--	5	5
Toluene	1000 (40) PS	1000	100	--	40
1,1,1 - Trichloroethane	200	200	--	200	200
1,1,2 - Trichloroethane	--	--	--	32	32
Trichloroethene	0	5	--	5	5

MCLG Maximum Contaminant Level Goal
 MCL Maximum Contaminant Level
 PS Proposed Secondary MCL
 TT MCL for total trihalomethanes
 () criteria in parentheses are proposed MCLs
 -- no criteria

ATTACHMENT A
AGENCY ADDENDUM FOR
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Combined Micro Storage/Intel Magnetix Site

Kim Camp III submitted a Final Remedial Investigation (RI), dated January 9, 1991 and a Final Feasibility Study dated May 14, 1991.

Regional Board staff have determined that the technical information contained in the RI/FS is acceptable for developing a final cleanup plan; however, Regional Board and other agency staff do not accept all interpretations and recommendations contained in the RI/FS.

Remedial Investigation

Staff disagreed with the portions of the RI addressing the extent of the groundwater pollution along the northwest edge of the plume. Board staff interpret the water quality data differently than is shown in the RI. Board staff recommends that these issues be resolved in this Agency Addendum to the RI and in the RAP, rather than in another revised version of the RI.

The area of disagreement centers on an approximate 2 acre area in the vicinity of wells MMW-2,5,7, and 9 on the Metropolitan Life Insurance Company (Metropolitan) property. The groundwater pollution in this area is primarily TCE at less than 30 parts per billion. KC III believes that the pollution detected in MW-7 is from the MSC/IM site and the pollution detected in MW-2,5,and 9 is from the Metropolitan site. Metropolitan, on the other hand, believes that the pollution in MW-2,5,7,and 9 is all from the combined MSC/IM site.

The extent of the plume remains not fully defined between the former location of monitoring well IM-8 (near MMW-7) and MMW-9. Board staff have repeatedly requested that KCIII conduct additional investigation to address the pollution in this area to better define the northwest margin of the plume. Beginning with our letter to KCIII dated January 30, 1990, and followed by letters dated March 16, 1990, May 17, 1990, and September 20, 1990, we requested that additional investigation be conducted to better define the western margin of the plume. To date, no additional work has been done. In light of KCIII's failure to more fully define the northwestern edge of the MSC/IM plume, the RAP will include tasks that require the dischargers to install additional monitoring wells to fully define the northwest margin of the plume. Wells installed by the dischargers will then be used to set compliance points.

Feasibility Study

Staff has previously requested the removal of the following language regarding compliance: "to the extent technically feasible", "to the extent technically practical," "to the extent technically possible". KCIII has failed to demonstrate that "drinking water quality" cannot be achieved. Table D-1, in fact, provides an adequate assessment of chemical specific ARARs and an estimation of time required to reach cleanup standards. Under Section 121 of CERCLA, ARAR's are statutory requirements that must be met unless the basis for a waiver is

established and the waiver is granted. Such a basis has not been met, thus, language pertaining to "technical impracticability" must be removed from the FS.

The sections of the report listed below are unacceptable in that they provide an incomplete discussion of ARARs and they contain the unacceptable language referenced above. Reference to Table D-1, "Documentation of ARARs" should be made in each of the sections of the report entitled "Compliance with ARARs".

Unacceptable Sections of the Feasibility Study

Section 8.4.1, Page 52, Compliance with ARARs

Section 8.5.1, Page 58, Compliance with ARARs

Section 8.6.1, Page 52, Compliance with ARARs

Section 9.13, Page 70, Long Term Effectiveness

Table 13 (1. Compliance with ARARs and 3. Long Term Effectiveness and Permanence)

Page C-6 of the FS includes a discussion of the uncertainties involved in achieving health based standards. Evaluations of whether or not asymptotic levels have been reached at a site, and decisions involving termination of the extraction system or adjustments cleanup standards are made solely by EPA and the Regional Board.

ATTACHMENT B

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN FRANCISCO BAY REGION

GROUNDWATER SELF-MONITORING PROGRAM FOR:

MICRO STORAGE CORPORATION,
KIM CAMP III,
KIMBALL SMALL INVESTMENTS III,
WESTALL CORPORATION, &
CAMPEAU CORPORATION CALIFORNIA:
FORMER MICRO STORAGE FACILITY
2986 OAKMEAD VILLAGE COURT
SANTA CLARA, SANTA CLARA COUNTY

INTEL CORPORATION &
3000 OAKMEAD VILLAGE DRIVE LTD.:
FORMER INTEL MAGNETICS FACILITY
3000 OAKMEAD VILLAGE DRIVE
SANTA CLARA, SANTA CLARA COUNTY

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a waste discharger's monitoring program, also referred to as a self-monitoring program, are: (1) To document compliance with site cleanup requirements and prohibitions established by this Regional Board, (2) To facilitate self-policing by the waste dischargers in the prevention and abatement of pollution arising from waste discharge, (3) To develop or assist in the development of effluent or other limitations, discharger prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) To prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the EPA Method 8000 series described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," dated November 1986; or other methods approved and specified by the Executive Officer of this Regional Board.

C. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Violations or Potential Violations of Requirements

- a. The dischargers shall file a written technical report at least 15 days prior to advertising for bid on any construction project which may potentially adversely effect the dischargers' soil and groundwater cleanup activities. All projects involving subsurface construction shall be reported.
- b. In the event the dischargers are unable to comply with the conditions of the site cleanup requirements and prohibitions due to:
 - (1) maintenance work, power failures, or breakdown of waste treatment equipment, or
 - (2) accidents caused by human error or negligence, or
 - (3) other causes such as acts of nature, or poor operation or inadequate system design,

the waste dischargers shall promptly accelerate the pertinent portions of the monitoring program to weekly or as required by the Regional Board's Executive Officer for those constituents which have been violated. Such analysis shall continue until such time as the dischargers are back in compliance with the conditions and prohibitions of the site cleanup requirements, or until such time as the Executive Officer determines to be appropriate. The results of such monitoring shall be included in the regular Self-Monitoring Report.

2. Self-Monitoring Reports

- a. Reporting Period:

Written reports shall be filed regularly each quarter within thirty days from the end of the quarter monitored. The first quarterly report is due July 31, 1991.

- b. Letter of Transmittal:

A letter transmitting self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period and actions taken or planned for correcting any requirement violation. If the dischargers have previously submitted a detailed time schedule for correcting requirement violations, a reference to this correspondence will be satisfactory. Monitoring reports and the letter transmitting reports shall be signed by either a principal executive officer or his duly authorized employee. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's

knowledge the report is true and correct.

c. Data Results:

- (1) Results from each required analysis and observation shall be submitted in the quarterly self-monitoring regular reports. Results shall also be submitted for any additional analyses performed by the dischargers at the specific request of the Regional Board. Quarterly water level data shall also be submitted in the quarterly report.
- (2) The quarterly report shall include a discussion of unexpected operational changes which could affect performance of the extraction system, such as flow fluctuations, maintenance shutdown, etc.
- (3) The quarterly report shall also identify the analytical procedures used for analyses either directly in the report or by reference to a standard plan accepted by the Regional Board's Executive Officer. Any special methods shall be identified and shall have prior approval of the Executive Officer.
- (4) Original lab results shall be retained and shall be made available for inspection for six years after origination or until after all continuing or impending legal or administrative actions are resolved.
- (5) Maps shall accompany the quarterly report, showing sampling locations and pollutant plume contours.
- (6) The dischargers shall describe in the quarterly monitoring report the effectiveness of the actions taken to regain compliance if compliance is not achieved. The effectiveness evaluation shall include the basis of determining the effectiveness, water surface elevations for each well used to determine water surface elevation contours and water quality data.
- (7) The annual report shall be combined with the quarterly report submitted on January 31, of each year and shall include cumulative data for the current year for each parameter of the attached Table SMP-2. The annual report shall also include minimum, maximum, median and average water quality data for the year. Water level data and GC/MS results shall be included in the annual report. The annual report shall also include contour maps for each chemical present above detectable concentrations.

d. Self-Monitoring Program (SMP) Revisions:

Additional long term or temporary changes in the sample collection frequency and routine chemical analysis may become warranted as monitoring needs change. These changes shall be based on the following criteria and shall be proposed in a quarterly report. The changes shall be implemented no earlier than 45 days after a self-monitoring report is submitted for review or not at all if the proposal is found to be unacceptable by the Regional Board's Executive Officer.

Criteria for SMP revisions:

- (1) Discontinued analysis for a routine chemical parameter for a specific well after a one-year period of below detection limit values for that parameter.
- (2) Changes in sampling frequency for a specific well after a one-year period of below detection limit values for all chemical parameters from that well.
- (3) Temporary increases in sampling frequency or changes in requested chemical parameters for a well or group of wells because of a change in data needs (e.g., evaluating groundwater extraction effectiveness or other cleanup strategies).
- (4) Add routine analysis for a chemical parameter if the parameter appears as an additional chromatographic peak in three consecutive samples from a particular well.
- (5) Add routine chemical parameters for new wells based on the results of initial GC/MS analysis.
- (6) Alter sampling frequency based on evaluation of collective data base.
- (7) Following a temporary increase in sampling frequency, as described in C.1, the regular sampling frequency will resume after 4 samples show stable or decreasing concentrations provided the sampling indicates compliance with the Site Cleanup Requirements.

D. DESCRIPTION OF GROUNDWATER SAMPLING STATIONS

All groundwater monitoring wells as listed in Table SMP-1 and as shown on Figure SMP-1.

E. SCHEDULE AND CONDITIONS OF SAMPLING AND ANALYSIS

The schedule and conditions of sampling and analysis shall be as given herein and as shown on Table SMP-3:


1. Once every three months, while cleanup standards are being achieved, representative samples shall be collected for analyses from monitoring wells listed in Table SMP-1 and as shown on Figure SMP-1. All samples of one event shall be collected at approximately the same time.
2. For any new extraction or monitoring well that may be constructed, sampling and analysis shall be conducted on a quarterly schedule for a term to be decided by the Regional Board's Executive Officer but not less than one year. A GC/MS analysis shall be performed on each new well immediately after installation and well development and all peaks identified and reported on each well in the next quarterly report.
3. After cleanup standards have been achieved, samples shall be collected for analyses from all monitoring and extraction wells identified in E.1. above, quarterly (every three months) during the one-year stability period.
4. Following completion of the stability period, samples shall be collected for analyses from all identified wells shown on Table SMP-3, twice annually during the long-term monitoring period, as long as cleanup standards are not exceeded, or as shall be determined by the Regional Board's Executive Officer. The long term monitoring period shall not last for less than five years after the end of the one-year stability period. At the end of the long term monitoring period, specific wells will be identified for biannual post closure monitoring. At this time the post closure monitoring period is expected to last approximately twenty-five years after the end of the long term monitoring.
5. If a previously undetected compound or peak is detected in a sample from a well, a second sample shall be taken within a week after the results from the first sample are available. All chromatographic peaks detected in two consecutive samples for purgeable halocarbons and/or volatile organics shall be identified and quantified in the quarterly report.
6. A GC/MS analysis shall be performed annually and all peaks identified and reported for all operating extraction wells and pits.
7. All chemical analyses shall have detection limits below the state action level for water for all constituents analyzed.
8. Groundwater elevations shall be obtained and reported on a quarterly basis from each monitoring and extraction well listed in Table SMP-1. In addition, the depth of the pump in all extraction wells shall be obtained and submitted in the quarterly report with the sampling results.

9. Depths of wells in Table SMP-1 shall be determined on an annual basis and compared to the depth of the well as constructed. The results of this comparison shall be reported in the annual report specified in C.2.c.(7).

I, Steven R. Ritchie, Regional Board Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data to determine compliance with Regional Board Order No. 91-119.
2. Is effective on the date shown below.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the dischargers and revisions will be ordered by the Executive Officer.

Effective Date: July 17, 1991



Steven R. Ritchie
Executive Officer

Attachments: Figure SMP-1 - Facility map including well locations
Table SMP-1 - Schedule for Sampling, Measurements, and Analysis
Table SMP-2 - Final Cleanup Standards
Table SMP-3 - Monitoring Frequency

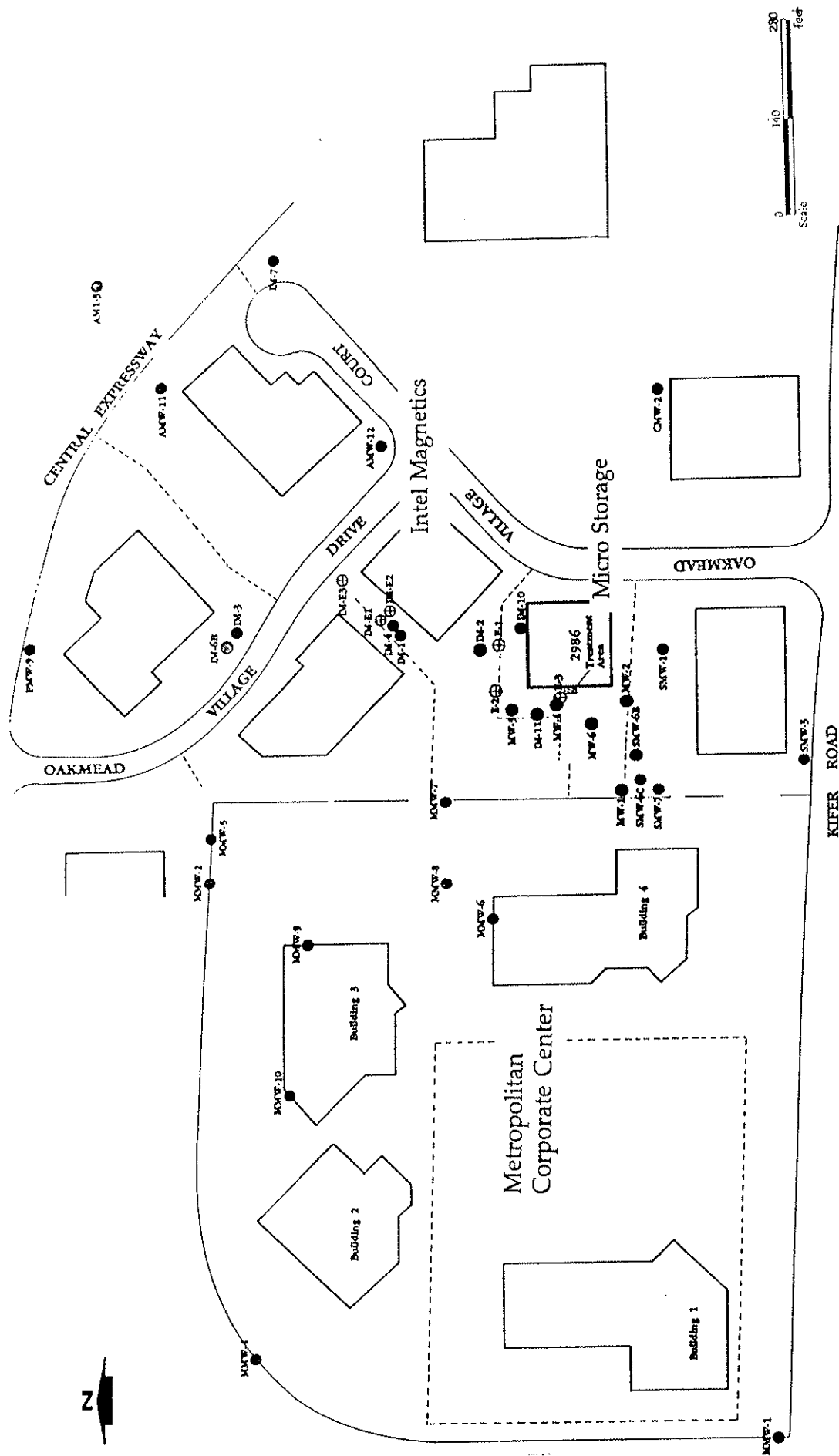


Figure 1. Micro Storage/Intel Magnetics Site Map

TABLE SMP-1

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS GROUNDWATER SELF-MONITORING PROGRAM

The Combined Micro Storage/Intel Magnetics Site
2986 Oakmead Village Court and 3000 Oakmead Village Drive
Santa Clara, Santa Clara County

TABLE SMP-1A QUARTERLY MONITORING (see Table SMP-3)

<u>Quarter:</u>	First (January-March)
<u>Sampling Station:</u>	MW-1, MW-4, MW-5, MW-6, IM-1, IM-2, IM-3, IM-4, IM-6, IM-7, IM-10, IM-11, IM-E1, IM-E2, IM-E3, AMW-11, AMW-12, PMW-9, MMW-2, MMW-5, MMW-7, MMW-8 and all future groundwater monitoring wells, extraction wells, and piezometers.
<u>Type of sample:</u>	Grab sample
<u>Type of analysis:</u>	EPA Method 8010 for all wells except wells MW-4, MW-5, IM-3, MMW-7, IM-10 and IM-11 which shall be analyzed using EPA Method 8240
<u>Quarter:</u>	Second (April-June)
<u>Sampling Station:</u>	IM-2, MW-6, MW-4, MMW-5, MMW-7, and AMW-11
<u>Type of sample:</u>	Grab sample
<u>Type of analysis:</u>	EPA Method 8010 with analysis for Freon 113
<u>Quarter:</u>	Third (July - September)
<u>Sampling Station:</u>	MW-1, MW-4, MW-5, MW-6, IM-3, IM-6, IM-7, IM-10, IM-11, IM-E2, IM-E3, AMW-11, AMW-12, PMW-9, MMW-2, MMW-5, MMW-7, MMW-8 and all future groundwater monitoring wells, extraction wells, and piezometers.
<u>Type of sample:</u>	Grab sample
<u>Type of analysis:</u>	EPA Method 8010 with analysis for Freon 113
<u>Quarter:</u>	Fourth (October - December)
<u>Sampling Station:</u>	IM-2, MW-6, MW-4, MMW-5, MMW-7, and AMW-11
<u>Type of sample:</u>	grab sample
<u>Type of analysis:</u>	EPA Method 8010 with analysis for Freon 113

TABLE SMP-1 continued

TABLE SMP-1B TRIANNUAL MONITORING (see Table SMP-3)

<u>Third:</u>	First (January-April)
<u>Sampling Station:</u>	MW-1, MW-4, MW-5, MW-6, IM-1, IM-2, IM-3, IM-4, IM-6, IM-7, IM-10, IM-11, IM-E1, IM-E2, IM-E3, AMW-11, AMW-12, PMW-9, MMW-2, MMW-5, MMW-7, MMW-8 and all future groundwater monitoring wells, extraction wells, and piezometers.
<u>Type of sample:</u>	Grab sample
<u>Type of analysis:</u>	EPA Method 8010 for all wells except wells MW-4, MW-5, IM-3, MMW-7, IM-10 and IM-11 which shall be analyzed using EPA Method 8240
<u>Third:</u>	Second (May-August)
<u>Sampling Station:</u>	IM-2, MW-6, MW-4, MMW-5, MMW-7, and AMW-11
<u>Type of sample:</u>	Grab sample
<u>Type of analysis:</u>	EPA Method 8010 with analysis for Freon 113
<u>Third:</u>	Third (September-December)
<u>Sampling Station:</u>	MW-1, MW-4, MW-5, MW-6, IM-3, IM-6, IM-7, IM-10, IM-11, IM-E2, IM-E3, AMW-11, AMW-12, PMW-9, MMW-2, MMW-5, MMW-7, MMW-8 and all future groundwater monitoring wells, extraction wells, and piezometers.
<u>Type of sample:</u>	Grab sample
<u>Type of analysis:</u>	EPA Method 8010 with analysis for Freon 113

TABLE SMP-2

GROUNDWATER CLEANUP STANDARDS
GROUNDWATER SELF-MONITORING PROGRAM

The Combined Micro Storage/Intel Magnetis Site
2986 Oakmead Village Court and 3000 Oakmead Village Drive
Santa Clara, Santa Clara County

(all values in $\mu\text{g/l}$)

COMPOUND	FEDERAL MCLG	FEDERAL MCL	CA ACTION LEVEL	CA MCL	CLEANUP STANDARD
Chloroform	--	100 TT	--	--	100
1,1- Dichloroethane	--	--	--	5	5
cis 1,2- Dichloroethene	70	70	--	6	6
trans 1,2- Dichloroethene	100	100	--	10	10
1,1- Dichloroethene	7	7	--	6	4
Freon 113	--	--	--	1200	1200
Methylene Chloride	(0)	(5)	40	--	40
Tetrachloroethene	0	5	--	5	5
Toluene	1000 (40) PS	1000	100	--	40
1,1,1 - Trichloroethane	200	200	--	200	200
1,1,2 - Trichloroethane	--	--	--	32	32
Trichloroethene	0	5	--	5	5

MCLG Maximum Contaminant Level Goal
MCL Maximum Contaminant Level
PS Proposed Secondary MCL
TT MCL for total trihalomethanes
() criteria in parentheses are proposed MCLs
-- no criteria

TABLE SMP-3

MONITORING FREQUENCY
GROUNDWATER SELF-MONITORING PROGRAM

The Combined Micro Storage/Intel Magnetics Site
2986 Oakmead Village Court and 3000 Oakmead Village Drive
Santa Clara, Santa Clara County

Monitoring Phase	Time Length	Monitoring Frequency	Sampling Station
Containment Phase	Two Years After Containment ⁽¹⁾	Quarterly	See Table SMP-1A
Cleanup Phase (Cleanup Standards not achieved)	Estimated 10 Years	Triannually	See Table SMP-1B
One Year Stability Phase (Cleanup Standards achieved)	One Year	Triannually	See Table SMP-1B
Long Term Phase	Five Years	Twice per year	MW-4, MW-5, IM-10, IM-11, PMW-9, MMW-7, MMW-2
Post Closure	Twenty-five	Every other year	As above

(1) Quarterly Monitoring will be conducted for two years (eight quarters) after the date the Executive Officer approves the report submitted in compliance with Task 2 of the Order.